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Peter Speckbacher

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EXAMINER

CHEN, YU

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/582,661	Applicant(s) SPECKBACHER ET AL.	
	Examiner YU CHEN	Art Unit 2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06/12/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to preliminary amendment filed 12 June 2006.

Claims 1-17 are canceled.

Claims 18-34 are new and pending.

Specification

The disclosure is objected to because of the following informalities:

In page 1, line 17, the limitation “scale **graduation**” should be amended to “scale **grating**” to correct a typographical error. Similar correction is required in page 5, line 28 and page 9, line 9.

In page 2, lines 3 and 12, the term “connoted” should be amended to “connected” to correct a typographical error.

In page 7, lines 1 and 5, the phrase “bottom **contacting**” should be amended to “bottom **contact**” to correct a typographical error.

In page 10, line 33, the reference label for “receiving grating” should be 1.7 since 1.4 is the label for “bottom contact”.

In page 12, lines 21, 23 and 24, the phrase “contactings” should be amended to “contacts” to correct a typographical error.

In page 13, line 31 and page 14, lines 4-5, the phrase “contacting” should be amended to “contact” to correct a typographical error.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 19-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 19, the limitations “one of (a) the first doped layer and (b) the p-layer” and “one of (a) the second doped layer and (b) the n-layer” render the claim indefinite. The recitation of “the p-layer” seems to imply “the first doped layer” has to be “the n-layer”. Similarly, the recitation of “the n-layer” seems to imply “the second doped layer” has to be “the p-layer”. Therefore, these limitations should be rephrased to distinctly claim the intended subject matter.

Regarding claim 24, the limitation “approximates an ellipse” renders the claim indefinite because it is unclear how “approximate” is defined. It is also unclear how the “measuring direction” is defined. Furthermore, the limitation “having a greater diameter” is indefinite because it is unclear what is “greater” in comparison to.

Other claims are rejected for dependence on a rejected claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 2815

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 18-20 and 30-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Uchiyama et al. (US Patent No. 4,885,622; hereinafter Uchiyama).

In re claim 18, Uchiyama discloses a “scanning head” for an optical position-measuring system, comprising: a “receiving grating” (e.g. FIG. 3E) including photosensitive areas 33 adapted to scan locally intensity-modulated light of different phase position, the receiving grating including a semiconductor layer stack that includes a doped p-layer 34, an intrinsic i-layer 35 and a doped n-layer 37; wherein the photosensitive areas 33 have in common a first of the two doped layers 34 and at least a part of the intrinsic layer 35 and are electrically separated from one another by interruptions of a second of the two doped layers 36 (Column 4, lines 62-68). The limitations “a scanning head for an optical position-measuring system” and “photosensitive areas adapted to scan locally intensity-modulated light of different phase position” recite an intended use and function of the device. A claim containing a “recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997); see also *In re Swinehart*, 439 F.2d 210, 212-13, 169 USPQ 226, 228-29 (CCPA 1971); *In re Danly*,

Art Unit: 2815

263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). “[A]pparatus claims cover what a device is, not what a device does.” Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). Furthermore, the limitations “scanning head” and “receiving grating” are considered as mere labels which do not distinguish over the device in the prior art applied.

In re claim 19, Uchiyama discloses (e.g. FIG. 3E) the semiconductor layer stack 33 is arranged on a transparent substrate 31 having a conductive and transparent electrode 32 (Column 4, lines 24-29), followed by bottom contacts 37, to provide a layer construction in the following order: the transparent substrate 31; the conductive electrode 32; one of (a) the first doped layer and (b) the p-layer 34; the intrinsic layer 35; one of (a) the second doped layer and (b) the n-layer 36; and the bottom contact 37.

In re claim 20, Uchiyama discloses (e.g. FIG. 3E) the photosensitive areas 33 are defined by the bottom contacts 37 (Column 4, lines 60-62).

In re claim 30, Uchiyama discloses (e.g. FIG. 3E) the semiconductor layer stack 33 is formed from amorphous silicon (Column 4, lines 33-53).

In re claim 31, Uchiyama discloses (e.g. FIG. 3E) a residual thickness of the i-layer 35 between the photosensitive areas 33 is less than a thickness of the i-layer in the photosensitive areas (Column 4, lines 60-64).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2815

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 21-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchiyama as applied to claims 18 and 19 above, and further in view of Holzapfel et al. (JP Patent Application Publication No. H07-146160A; hereinafter Holzapfel).

In re claim 21, Uchiyama discloses the claimed invention including a receiving grating comprising a photodetector array formed on a transparent substrate. Uchiyama does not disclose a transmitting grating arranged on the substrate. However Holzapfel discloses (e.g. FIG. 6) an integrated receiving grating 13.1-13.4 and transmitting grating 1 on the same substrate. The integrated structure provides more precise and consistent measurement and minimizes calibration needs. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made employ the PIN detector array structure of Uchiyama as the receiving grating in Holzapfel's integrated receiving and transmitting gratings to achieve both the benefit of the high response speed of Uchiyama's detector (Column 5, lines 51-53) and Holzapfel's integrated structure.

In re claim 22, Holzapfel discloses (e.g. FIG. 6) the transmitting grating 1 is arranged in a center of an area of the receiving grating 13.1-13.4.

In re claim 23, Holzapfel discloses (e.g. FIG. 6) the transmitting grating 1 is completely surrounded by the receiving grating 13.1-13.4.

In re claim 24, Holzapfel discloses (e.g. FIG. 6) a shape of the receiving grating 13.1-13.4 "approximates" an ellipse having a "greater diameter" perpendicular to a

Art Unit: 2815

measuring direction. The limitation “approximates an ellipse” is broad and therefore does not distinguish over the device of Holzapfel. Furthermore, it is unclear what the limitation “greater diameter” is in comparison to. The measuring direction is also undefined. Therefore, the limitations in the claim does not distinguish over the prior art applied. Furthermore, it would have been an obvious matter of design choice to form the receiving grating in an “approximate” ellipse shape, since such a modification would have involved a mere change in the size and shape of a component. A change in size and shape is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1995).

In re claim 25, Holzapfel discloses (e.g. FIG. 6) a light source 1 assigned to the transmitting grating.

In re claim 26, Holzapfel discloses (e.g. FIG. 7) adjacent photosensitive areas 13.1-13.4 are adapted to emit signals phase-shifted by 180 degrees (Paragraph 25).

In re claim 27, Holzapfel discloses (e.g. FIG. 7) a scale division of the receiving grating 13.1-13.4 corresponds to one-half of a period of an incident, locally modulated intensity pattern (Paragraph 25).

In re claim 28, Holzapfel discloses (e.g. FIG. 6) adjacent photosensitive areas 13.1-13.4 are adapted to emit signals phase-shifted by 90 degrees (Paragraph 25).

In re claim 29, Holzapfel discloses (e.g. FIG. 6) a scale division of the receiving grating corresponds to one-quarter of a period of an incident, locally modulated intensity pattern (Paragraph 25).

Claims 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchiyama as applied to claim 31 above as applied to claim 31 above.

In re claim 32, Uchiyama discloses the claimed invention including a residual thickness of the i-layer between the photosensitive areas is less than a thickness of the i-layer in the photosensitive areas. Although Uchiyama does not explicitly disclose the residual thickness of the i-layer is between 5% and 95% of the thickness of the i-layer, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the i-layer having a residual thickness between 5% and 95% for providing good adhesion surface for the overlying protective film as disclosed by Uchiyama (Column 5, lines 54-61). It has been held that where the general conditions for a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). Furthermore, the range of 5% to 95% is broad and therefore does not distinguish over the device of Uchiyama.

In re claim 33, Uchiyama discloses the claimed invention including a residual thickness of the i-layer between the photosensitive areas is less than a thickness of the i-layer in the photosensitive areas. Although Uchiyama does not explicitly disclose the residual thickness of the i-layer is between 10% and 90% of the thickness of the i-layer, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the i-layer having a residual thickness between 10% and 90% for providing good adhesion surface for the overlying protective film as disclosed by Uchiyama (Column 5, lines 54-61). It has been held that where the general

Art Unit: 2815

conditions for a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). Furthermore, the range of 10% to 90% is broad and therefore does not distinguish over the device of Uchiyama.

In re claim 34, Uchiyama discloses the claimed invention including a residual thickness of the i-layer between the photosensitive areas is less than a thickness of the i-layer in the photosensitive areas. Although Uchiyama does not explicitly disclose the residual thickness of the i-layer is approximately 90% of the thickness of the i-layer, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the i-layer having a residual thickness of approximately 90% for providing good adhesion surface for the overlying protective film as disclosed by Uchiyama (Column 5, lines 54-61). It has been held that where the general conditions for a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). Furthermore, the limitation "approximately 90%" is broad and therefore does not distinguish over the device of Uchiyama.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YU CHEN whose telephone number is 571-270-7881. The examiner can normally be reached on Monday-Friday 8:30AM-5:00PM EDT.

Art Unit: 2815

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Parker can be reached on 571-272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/YU CHEN/
Examiner, Art Unit 2815

/Jerome Jackson Jr./
Primary Examiner, Art Unit 2815